

Appl. No. : 10/778,012
Filed : February 12, 2004

REMARKS

A. Introduction

Applicant respectfully requests reconsideration and allowance of this application. Claims 2, 4-7, 9-12, 15-17 and 19-25 are pending in the application. Applicant has amended Claims 4, 10 and 23-25. Applicant's claim amendments are shown on the pages above following the heading AMENDMENTS TO THE CLAIMS. On these pages, the deletions are ~~struck through~~ while the insertions are underlined.

Applicant submits that this application is now in condition for allowance, and Applicant earnestly requests such action. Below, Applicant addresses each of the Examiner's reasons for rejection.

B. Claims 2, 4-7, 9-12, 15-17 and 19-25 Should be Examined Together in the Present Application

The Examiner has maintained that Claims 2, 4-7 and 23-25 are drawn to a subcombination apparatus, and that Claims 9-12, 15-17 and 19-22 are drawn to a subcombination method, and that these inventions are distinct from one another. Specifically, the Examiner asserts that the claimed method is independent and distinct from the claimed apparatus because the claimed method could be practiced by hand. Applicant respectfully disagrees.

Claim 10, as amended, recites several steps that cannot possibly be performed by hand. For example, Claim 10 recites the step of injecting steam into a compaction chamber. This step obviously requires that some type of steam-injection apparatus be used, such as the steam-injection apparatus recited in Claim 4. Applicant cannot fathom how an operator might inject steam into a compaction chamber using nothing more than his or her hands. Further, Claim 10 recites the step of compressing refuse into a refuse block. Here again some type of compressing apparatus must be used, such as the compressing apparatus recited in Claim 4. Human hands simply cannot generate the force necessary to compress refuse sufficiently to create a refuse block.

The Examiner indicated that if Claim 4 were amended to state in more general terms the structure for performing the method of Claim 10, then such amendments would overcome the independent and distinct restriction requirement. Applicant has amended Claim 4, as shown above, to recite "steam-injection apparatus", "steam-removal apparatus" and "compressing

apparatus”. Applicant respectfully asserts that these amendments overcome the independent and distinct restriction requirement. Accordingly, Applicant respectfully requests that the Examiner withdraw the restriction requirement and examine Claims 2, 4-7, 9-12, 15-17 and 19-25 together in the present application.

C. All Claims are Patentable Over the Cited References

Camacho - § 102 Rejections

The Examiner rejected Claims 4-7 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,634,414 to Camacho. Applicant respectfully submits that these claims are allowable over Camacho.

An anticipation rejection under § 102 requires that “every element of the claimed invention must be identically shown in a single reference.” *In re Bond*, 910 F.2d 831 (Fed. Cir. 1990). “There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention.” *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565 (Fed. Cir. 1991).

Various preferred embodiments of the present application define, *inter alia*, a compaction station for treating and compacting refuse. The compaction station comprises a compaction chamber configured to receive the refuse. The compaction station further comprises steam-injection apparatus configured to inject steam into the compaction chamber, and steam-removal apparatus configured to remove steam from the compaction chamber. The compaction station further comprises compressing apparatus configured to compress the refuse in the compaction chamber.

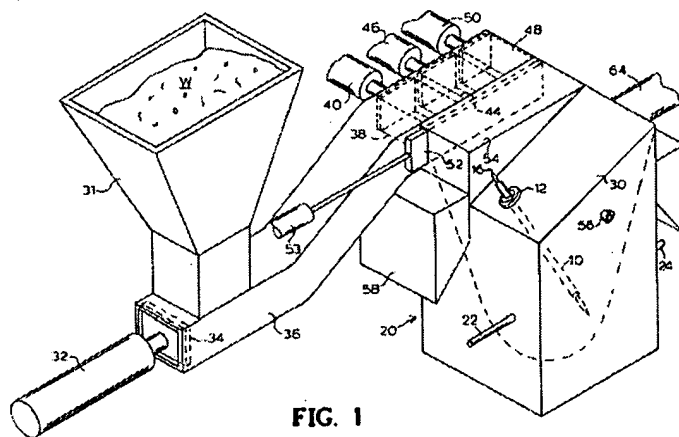


FIG. 1

By contrast, Camacho discloses apparatus and methods for plasma pyrolysis and vitrification of municipal waste. With reference to Figure 1, reproduced at left, the apparatus includes a reactor housing 20 that receives the waste. (col. 3, ll. 43-52) Mixed waste W is supplied to a bin 31 from which it is

moved under pressure by ram 34. (col. 4, ll. 24-26) As the waste W moves from the bin 31

through the supply chute 36, it becomes compacted. (col. 4, ll. 32-34) The compaction reduces the volume of waste W from about 75 cubic feet per ton to about 40 cubic feet per ton or less. (col. 4, ll. 41-44) Highly compacted waste segments 38, 44, 48 are sequentially positioned adjacent waste transporters 40, 46, 50, which push the waste segments into the reactor. (Figure 3; col. 4, ll. 58-62; col. 5, ll. 8-17) *Immediately after each compacted waste block 38 is discharged from the chute 36 in a compacted condition, the waste in the block rapidly expands to a loose block 38' and ultimately returns to approximately its original volume of 75 cubic feet per ton as waste mass 38".* (Figure 3; col. 5, ll. 22-26) Within the reactor, a pivotally and extendible mounted plasma arc torch is employed as a heat source to pyrolyze organic waste components to generate desired by-product gases. (Abstract) Air and steam are added in controlled quantities to improve the operational efficiency and the by-product gas composition.

Camacho does not disclose or suggest a compaction station including a compaction chamber configured to receive refuse, steam-injection apparatus configured to inject steam into the compaction chamber, steam-removal apparatus configured to remove steam from the compaction chamber, and compressing apparatus configured to compress the refuse in the compaction chamber. As explained in detail above, and again with reference to Figures 1 and 3, in the apparatus of Camacho the waste W is compacted by the ram 34 as it moves through the supply chute 36. The supply chute 36 is the *only* location in the apparatus of Camacho where compaction takes place. However, Camacho does not disclose or suggest any apparatus for injecting steam into the supply chute, and Camacho does not disclose or suggest any apparatus for removing steam from the supply chute. Thus, the supply chute does not comprise a compaction chamber configured to receive refuse, steam-injection apparatus configured to inject steam into the compaction chamber, and steam-removal apparatus configured to remove steam from the compaction chamber, as recited in Claim 4.

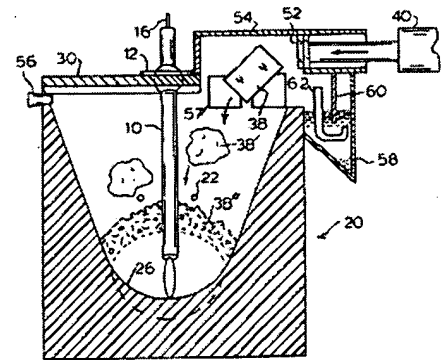


FIG. 3

The only steam injection apparatus disclosed or suggested by Camacho is the steam inlet pipes 24 that may be used to inject steam into the reactor 20. However, the reactor does not include apparatus configured to compress refuse, as recited in Claim 4, and thus the reactor does

Appl. No. : 10/778,012
Filed : February 12, 2004

not comprise a compaction chamber. In fact, as each compacted waste block 38 is discharged from the chute 36 into the reactor 20, the waste in the block rapidly expands to a loose block 38' and ultimately returns to approximately its original volume of 75 cubic feet per ton. (Figure 3; col. 5, ll. 22-26) The expanded waste is then pyrolyzed. The waste ultimately exits the reactor as gaseous byproducts and vitrified solids. Furthermore, the reactor does not include apparatus configured to remove steam, as also recited in Claim 4. Thus, the reactor does not comprise a compaction chamber configured to receive refuse, steam-injection apparatus configured to inject steam into the compaction chamber, steam-removal apparatus configured to remove steam from the compaction chamber, and compressing apparatus configured to compress refuse, as recited in Claim 4.

Since Camacho does not disclose or suggest a compaction chamber having the features described above, Applicant respectfully submits that independent Claim 4 is not anticipated by Camacho. Dependent Claims 5-7, which include the features of independent Claim 4, recite additional features of particular advantage and utility. Moreover, these claims are allowable for substantially the same reasons presented above. Camacho does not disclose or suggest all of the limitations of Claim 4, let alone the unique combinations of features recited by Claims 5-7. Accordingly, Applicant respectfully requests that the Examiner withdraw these rejections.

Camacho in view of Smith et al.

The Examiner rejected Claims 4-7 under 35 U.S.C. § 103(a) as being unpatentable over Camacho in view of U.S. Patent No. 3,550,791 to Smith et al. (Smith). Applicant respectfully submits that this claim is allowable over Camacho in view of Smith.

In rejecting claims under § 103, the Examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See M.P.E.P. §§ 706.02(j), 2142. The teaching or suggestion to make the claimed combination and

Appl. No. : 10/778,012
Filed : February 12, 2004

the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991).

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

Various preferred embodiments of the present application define, *inter alia*, a compaction station for treating and compacting refuse. The compaction station comprises a compaction chamber configured to receive the refuse. The compaction station further comprises steam-injection apparatus configured to inject steam into the compaction chamber, and steam-removal apparatus configured to remove steam from the compaction chamber. The compaction station further comprises compressing apparatus configured to compress the refuse in the compaction chamber. The compaction station further comprises a rotatable platform for holding the refuse.

By contrast, Camacho discloses apparatus and methods for plasma pyrolysis and vitrification of municipal waste, as described in detail above. Smith discloses a materials storage and conveying assembly. The assembly includes a turntable supportable and rotatable in a chamber, a system for controlling the elevation of the turntable in the chamber and a system for turning the turntable in the chamber for receiving and delivering material respectively to and from the turntable.

Claim 2 depends from Claim 5, which depends from Claim 4. Claim 2 thus includes all of the limitations of Claim 4. Claim 4 recites a compaction chamber configured to receive refuse, steam-injection apparatus configured to inject steam into the compaction chamber, steam-removal apparatus configured to remove steam from the compaction chamber, and compressing apparatus configured to compress refuse. As described in detail above, Camacho does not disclose or suggest such a compaction chamber. Smith is completely unrelated to refuse compaction, and was cited by the Examiner solely to show "a rotatable platform". (Office Action page 5) Accordingly, the combination of Camacho and Smith cannot possibly disclose or suggest a compaction chamber as recited in Claim 4.

Appl. No. : 10/778,012
Filed : February 12, 2004

Since the combination of Camacho and Smith does not disclose or suggest a compaction chamber configured to receive refuse, steam-injection apparatus configured to inject steam into the compaction chamber, steam-removal apparatus configured to remove steam from the compaction chamber, and compressing apparatus configured to compress refuse, Applicant respectfully submits that Claim 2 is allowable over Camacho in view of Smith. Accordingly, Applicant respectfully requests that the Examiner withdraw this rejection.

Camacho in view of Wood

The Examiner rejected Claim 23 under 35 U.S.C. § 103(a) as being unpatentable over Camacho in view of U.S. Patent No. 3,747,516 to Wood. Applicant respectfully submits that this claim is allowable over Camacho in view of Wood.

Various preferred embodiments of the present application define, *inter alia*, a compaction station for treating and compacting refuse. The compaction station comprises a compaction chamber configured to receive the refuse. The compaction station further comprises steam-injection apparatus configured to inject steam into the compaction chamber, and steam-removal apparatus configured to remove steam from the compaction chamber. The compaction station further comprises a hydraulic ram configured to compress the refuse in the compaction chamber.

By contrast, Camacho discloses apparatus and methods for plasma pyrolysis and vitrification of municipal waste, as described in detail above. Wood discloses apparatus and methods for baling refuse. The apparatus includes a first compacting chamber 10 and a second baling chamber 42. The second baling chamber includes a bore 58 containing a steam injection valve 60. When refuse is positioned within the second baling chamber, steam is injected to displace air from the spaces in the refuse. The spaces fill with steam, which later condenses and creates partial vacuums within the refuse bale, thereby resisting the tendency for the bale to expand after it is ejected from the second baling chamber.

Claim 23 depends from Claim 4. Claim 23 thus includes all of the limitations of Claim 4. Claim 4 recites a compaction chamber configured to receive refuse, steam-injection apparatus configured to inject steam into the compaction chamber, steam-removal apparatus configured to remove steam from the compaction chamber, and compressing apparatus configured to compress refuse. As described in detail above, Camacho does not disclose or suggest such a compaction chamber. Wood does not disclose or suggest at least a compaction chamber including steam-

Appl. No. : 10/778,012
Filed : February 12, 2004

removal apparatus configured to remove steam from a compaction chamber. Accordingly, the combination of Camacho and Wood cannot possibly disclose or suggest a compaction chamber including steam-removal apparatus configured to remove steam from the compaction chamber, as recited in Claim 4.

Since the combination of Camacho and Wood does not disclose or suggest a compaction chamber including steam-removal apparatus configured to remove steam from the compaction chamber, Applicant respectfully submits that Claim 23 is allowable over Camacho in view of Wood. Accordingly, Applicant respectfully requests that the Examiner withdraw this rejection. Camacho in view of Carter et al.

The Examiner rejected Claims 24 and 25 under 35 U.S.C. § 103(a) as being unpatentable over Camacho in view of U.S. Patent No. 5,280,757 to Carter et al. (Carter). Applicant respectfully submits that these claims are allowable over Camacho in view of Carter.

Various preferred embodiments of the present application define, *inter alia*, a compaction station for treating and compacting refuse. The compaction station comprises a compaction chamber configured to receive the refuse. The compaction station further comprises steam-injection apparatus configured to inject steam into the compaction chamber, and steam-removal apparatus configured to remove steam from the compaction chamber. The compaction station further comprises compressing apparatus configured to compress the refuse in the compaction chamber. The compaction station further comprises a boiler configured to create steam, the boiler being in communication with the steam-injection apparatus. And in another embodiment the compaction station further comprises a steam condenser in communication with the steam-removal apparatus, the steam condenser being configured to condense the steam into water and supply the water to the boiler.

By contrast, Camacho discloses apparatus and methods for plasma pyrolysis and vitrification of municipal waste, as described in detail above. Carter discloses a municipal solid waste disposal process and apparatus in which a plasma arc torch is used as an independent heat source in an enclosed reactor vessel to gasify municipal solid waste and produce a medium quality gas and an inert monolithic slag.

Claim 24 depends from Claim 4, and Claim 25 depends from Claim 24. Claims 24 and 25 thus each include all of the limitations of Claim 4. Claim 4 recites a compaction chamber

Appl. No. : **10/778,012**
Filed : **February 12, 2004**

configured to receive refuse, steam-injection apparatus configured to inject steam into the compaction chamber, steam-removal apparatus configured to remove steam from the compaction chamber, and compressing apparatus configured to compress refuse. As described in detail above, Camacho does not disclose or suggest such a compaction chamber. Carter does not even disclose a compaction chamber, and was cited by the Examiner solely to show "a boiler and condenser". (Office Action page 6) Accordingly, the combination of Camacho and Carter cannot possibly disclose or suggest a compaction chamber as recited in Claim 4.

Since the combination of Camacho and Carter does not disclose or suggest a compaction chamber configured to receive refuse, steam-injection apparatus configured to inject steam into the compaction chamber, steam-removal apparatus configured to remove steam from the compaction chamber, and compressing apparatus configured to compress refuse, Applicant respectfully submits that Claims 24 and 25 are allowable over Camacho in view of Carter. Accordingly, Applicant respectfully requests that the Examiner withdraw these rejections.

Double Patenting Rejections

The Examiner rejected Claims 4-7 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 29-32 of U.S. Patent No. 6,471,443 to Renaud in view of Camacho. The Examiner also rejected Claim 2 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 29-32 of Renaud in view of Camacho and further in view of Smith. The Examiner also rejected Claims 23-25 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 29-32 of Renaud in view of Camacho and further in view of Carter et al.

Applicant respectfully disagrees with the Examiner's reasoning in the obviousness-type double patenting rejections above. Nevertheless, in order to expedite the allowance of these claims, Applicant includes herewith a terminal disclaimer under 37 C.F.R. 1.321(c) disclaiming the terminal portion of any patent granted on the present application that would extend beyond the expiration date of the full statutory term of Renaud. Accordingly, Applicant respectfully requests that the Examiner withdraw these rejections.

Appl. No. : 10/778,012
Filed : February 12, 2004

CONCLUSION

For the reasons presented above, Applicant respectfully submits that this application, as amended, is in condition for allowance. If there is any further hindrance to allowance of the pending claims, Applicant invites the Examiner to contact the undersigned.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

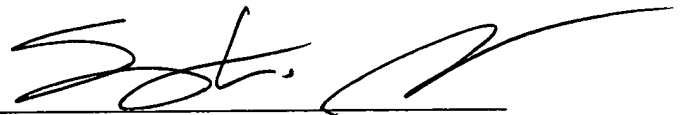
Respectfully submitted,

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Dated: _____

6-29-06

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